

AMENDMENTS TO THE CLAIMS

Claims 1-28 (Canceled).

Claim 29 (Currently Amended): A recombinant nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:10 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C.

Claim 30 (Previously Presented): The recombinant nucleic acid of claim 29 comprising SEQ ID NO:10.

Claim 31 (Currently Amended): A recombinant nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:10.

Claim 32 (Previously Presented): A recombinant nucleic acid encoding SEQ ID NO:9.

Claim 33 (Original): A host cell comprising the recombinant nucleic acid of claim 29.

Claim 34 (Original): An expression vector comprising the recombinant nucleic acid of claim 29 operably linked to a transcriptional regulatory sequence.

Claim 35 (Previously Presented): A host cell comprising an expression vector comprising the recombinant nucleic acid of claim 29 operably linked to a transcriptional regulatory sequence active in said host cell.

Claim 36 (Currently Amended): A transgenic plant comprising ~~a the~~ recombinant nucleic acid selected from the group consisting of a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation comprising a nucleic acid that hybridizes to SEQ ID NO:10 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C ~~the nucleic acid of claim 29,~~ a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:26 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C, and a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:27 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C.

Claim 37 (Canceled).

Claim 38 (Currently Amended): ~~The A~~ transgenic plant of claim 36 wherein ~~comprising a host cell comprising an expression vector comprising~~ the recombinant nucleic acid is selected from the group consisting of the nucleic acid of claim 29, a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid that hybridizes under high stringency conditions to SEQ ID NO:26, and a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid that hybridizes under high stringency conditions to SEQ ID NO:27 operably linked to a transcriptional regulatory sequence active in said cell.

Claim 39 (Original): The transgenic plant of claim 38 wherein said host cell is a seed cell.

Claim 40 (Currently Amended): A transgenic seed comprising a transcriptional regulatory sequence active in said seed operably linked to a ~~the~~ recombinant nucleic acid selected from the

group consisting of a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation comprising a nucleic acid that hybridizes to SEQ ID NO:10 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C the ~~nucleic acid of claim 29~~, a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:26 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C, and a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:27 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C ~~operably linked to transcriptional regulatory sequences active in said seed.~~

Claim 41 (Original): A method of expressing an NTR protein comprising culturing a host cell comprising the recombinant nucleic acid of claim 29 under conditions suitable for expression of said NTR protein.

Claim 42 (Original): A method of expressing an NTR protein comprising culturing a host cell comprising an expression vector comprising the recombinant nucleic acid of claim 29 operably linked to regulatory sequences active in said host cell under conditions suitable for expression of said NTR protein.

Claim 43 (Currently Amended): A method of expressing an NTR protein comprising culturing a the transgenic plant of claim 36 ~~comprising the recombinant nucleic acid selected from the group consisting of the nucleic acid of claim 29, a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid that hybridizes under high stringency conditions to SEQ ID NO:26, and a nucleic acid encoding an NTR protein having NTR biological activity~~

~~comprising a nucleic acid that hybridizes under high stringency conditions to SEQ ID NO:27~~
under conditions suitable for expression of said NTR protein.

Claim 44 (Currently Amended): A method of expressing an NTR protein comprising culturing a the transgenic plant of claim 38 ~~comprising an expression vector comprising the recombinant nucleic acid selected from the group consisting of the nucleic acid of claim 29, a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid that hybridizes under high stringency conditions to SEQ ID NO:26, and a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid that hybridizes under high stringency conditions to SEQ ID NO:27 operably linked to regulatory sequences active in said transgenic plant~~ under conditions suitable for expression of said NTR protein.

Claim 45 (Original): A method of expressing an NTR protein comprising culturing the transgenic seed of claim 40.

Claim 46 (Previously Presented): The method of claim 41 further comprising recovering said protein.

Claims 47-64 (Canceled).

Claim 65 (Currently Amended): A isolated nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:10 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C.

Claim 66 (Previously Presented): The isolated nucleic acid of claim 65 comprising SEQ ID NO:10.

Claim 67 (Currently Amended): An isolated nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:10.

Claim 68 (Previously Presented): An isolated nucleic acid encoding SEQ ID NO:9.

Claim 69 (Currently Amended): A transgenic plant comprising an the isolated nucleic acid selected from the group consisting of a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation comprising a nucleic acid that hybridizes to SEQ ID NO:10 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C ~~the nucleic acid of claim 65~~, a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:26 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C, and a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid that hybridizes ~~under high stringency conditions~~ to SEQ ID NO:27 under hybridization conditions that include at least one wash in 0.1 X SSC at 65°C.

Claims 70-72 (Canceled).

Claim 73 (Previously Presented): An expression vector comprising the recombinant nucleic of claim 30 operably linked to a transcriptional regulatory sequence.

Claim 74 (Previously Presented): An expression vector comprising the recombinant nucleic of claim 31 operably linked to a transcriptional regulatory sequence.

Claim 75 (Previously Presented): An expression vector comprising the recombinant nucleic of claim 32 operably linked to a transcriptional regulatory sequence.

Claim 76 (Previously Presented): A host cell comprising an expression vector comprising the recombinant nucleic acid of claim 30 operably linked to a transcriptional regulatory sequence active in said host cell.

Claim 77 (Previously Presented): A host cell comprising an expression vector comprising the recombinant nucleic acid of claim 31 operably linked to a transcriptional regulatory sequence active in said host cell.

Claim 78 (Previously Presented): A host cell comprising an expression vector comprising the recombinant nucleic acid of claim 32 operably linked to a transcriptional regulatory sequence active in said host cell.

Claim 79 (Currently Amended): A transgenic plant comprising ~~a~~ the recombinant nucleic acid selected from the group consisting of SEQ ID NO:10 ~~the nucleic acid of claim 30~~, SEQ ID NO:26, and SEQ ID NO:27.

Claim 80 (Currently Amended): A transgenic plant comprising ~~a~~ the recombinant nucleic acid selected from the group consisting of a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:10 ~~the nucleic acid of claim 31~~, a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation having ~~NTR biological activity~~ comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:26, and a nucleic acid encoding an NTR protein that catalyzes the reduction of

thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:27.

Claim 81 (Currently Amended): A transgenic plant comprising ~~a~~ the recombinant nucleic acid selected from the group consisting of a nucleic acid encoding SEQ ID NO:9 ~~the nucleic acid of claim 32~~, a nucleic acid encoding SEQ ID NO:24, and a nucleic acid encoding SEQ ID NO:25.

Claim 82 (Currently Amended): The A transgenic plant of claim 79 wherein ~~comprising an expression vector comprising the recombinant nucleic acid is selected from the group consisting of the nucleic acid of claim 30, SEQ ID NO:26, and SEQ ID NO:27 operably linked to a transcriptional regulatory sequence active in said cell.~~

Claim 83 (Currently Amended): The A transgenic plant of claim 80 wherein ~~comprising an expression vector comprising the recombinant nucleic acid is selected from the group consisting of the nucleic acid of claim 31, a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:26, and a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:27 operably linked to a transcriptional regulatory sequence active in said cell.~~

Claim 84 (Currently Amended): The A transgenic plant of claim 81 wherein ~~comprising an expression vector comprising the recombinant nucleic acid is selected from the group consisting of the nucleic acid of claim 32, a nucleic acid encoding SEQ ID NO:24, and a nucleic acid encoding SEQ ID NO:25 operably linked to a transcriptional regulatory sequence active in said cell.~~

Claim 85 (Currently Amended): A transgenic plant comprising a host cell comprising an expression vector comprising a transcriptional regulatory sequence active in said cell operably linked to a the recombinant nucleic acid selected from the group consisting of SEQ ID NO:10 the nucleic acid of claim 30, SEQ ID NO:26, and SEQ ID NO:27 ~~operably linked to a transcriptional regulatory sequence active in said cell.~~

Claim 86 (Currently Amended): ~~The A transgenic plant of claim 85 wherein comprising a host cell comprising an expression vector comprising the recombinant nucleic acid is selected from the group consisting of the nucleic acid of claim 31, a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:26, and a nucleic acid encoding an NTR protein having NTR biological activity comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:27 operably linked to a transcriptional regulatory sequence active in said cell.~~

Claim 87 (Currently Amended): A transgenic plant comprising a host cell comprising an expression vector comprising a transcriptional regulatory sequence active in said cell operably linked to a the recombinant nucleic acid selected from the group consisting of a nucleic acid encoding SEQ ID NO:9 the nucleic acid of claim 32, a nucleic acid encoding SEQ ID NO:24, and a nucleic acid encoding SEQ ID NO:25 ~~operably linked to a transcriptional regulatory sequence active in said cell.~~

Claim 88 (Currently Amended): A transgenic seed comprising a transcriptional regulatory sequence active in said seed operably linked to a the recombinant nucleic acid selected from the group consisting of SEQ ID NO:10 the nucleic acid of claim 30, SEQ ID NO:26, and SEQ ID NO:27 ~~operably linked to transcriptional regulatory sequences active in said seed.~~

Claim 89 (Currently Amended): A transgenic seed comprising a transcriptional regulatory sequence active in said seed operably linked to a the recombinant nucleic acid selected from the group consisting of a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:10 ~~the nucleic acid of claim 31~~, a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:26, and a nucleic acid encoding an NTR protein that catalyzes the reduction of thioredoxin coupled to NADPH₂ oxidation ~~having NTR biological activity~~ comprising a nucleic acid having at least 95% sequence identity to SEQ ID NO:27 ~~operably linked to transcriptional regulatory sequences active in said seed.~~

Claim 90 (Currently Amended): A transgenic seed comprising a transcriptional regulatory sequence active in said seed operably linked to a the recombinant nucleic acid selected from the group consisting of a nucleic acid encoding SEQ ID NO:9 ~~the nucleic acid of claim 32~~, a nucleic acid encoding SEQ ID NO:24, and a nucleic acid encoding SEQ ID NO:25 ~~operably linked to transcriptional regulatory sequences active in said seed.~~

Claim 91 (Previously Presented): The method of claim 42 further comprising recovering said protein.

Claim 92 (Previously Presented): The method of claim 43 further comprising recovering said protein.

Claim 93 (Previously Presented): The method of claim 44 further comprising recovering said protein.

Claim 94 (Previously Presented): The method of claim 45 further comprising recovering said protein.